

I claim:

- 1 1. Circuitry to provide remote slow shutter
2 processing of a video signal from a video source,
3 comprising:
4 a memory, remote from the video source, to store a
5 digital representation of a selected video signal; and
6 signaling means to provide a write control signal
7 that controls whether a portion of the selected video
8 signal is stored in the memory.
- 1 2. The circuitry as recited in claim 1 further
2 comprising:
3 a selector to select one of a plurality of video
4 sources as the selected video source.
- 1 3. The circuitry as recited in claim 1 wherein the
2 write control signal is a don't-write signal.
- 1 4. The circuitry as recited in claim 1 wherein the
2 signaling means synchronizes the capture and refresh
3 display of images from the selected video source when
4 operating in a slow shutter mode.
- 1 5. The circuitry as recited in claim 1 wherein the
2 signaling means provides bidirectional control signals,
3 including the write control signal, between the
4 selected video source and the memory.
- 1 6. The circuitry as recited in claim 5 wherein the
2 bidirectional control signals further include an
3 enable-slow-shutter signal to enable operation of a

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1 7. The circuitry as recited in claim 1 wherein the
2 selected video source supplies a video signal, and the
3 write control signal is separate from the video signal.

1 9. The circuitry as recited in claim 5 wherein at
2 least one of the bidirectional control signals is an
3 adjusted voltage level of the video signal.

1 10. The circuitry as recited in claim 5 wherein at
2 least one of the bidirectional control signals is
3 identified by its width in a vertical blanking interval
4 of the video signal.

1 11. The circuitry as recited in claim 5 wherein at
2 least one of the bidirectional control signals is a
3 pulse applied to a portion of a vertical blanking
4 interval of the video signal.

1 12. The circuitry as recited in claim 6 wherein the
2 signaling means includes:
3 an enable-detector circuit to detect the
4 enable-slow-shutter signal; and
5 a generate-don't-write-signal circuit to generate
6 the don't-write signal.

1 13. The circuitry as recited in claim 6 wherein the
2 signaling means includes:
3 a generate-enable signal circuit to generate the
4 enable-slow-shutter signal; and
5 a detect-don't-write-signal circuit to detect the
6 don't-write signal, wherein the memory maintains the
7 stored signal in the memory when the
8 detect-don't-write-signal circuit detects the
9 don't-write signal.

1 14. The circuitry as recited in claim 2 wherein the
2 selector includes an N x M switch.

1 15. The circuitry as recited in claim 2 wherein the
2 selector includes a multiplexer.

1 16. The circuitry as recited in claim 1 further
2 comprising signal processing means for adding a
3 predetermined number of fields of the video signal in
4 the memory.

1 17. The circuitry as recited in claim 1 wherein the
2 memory stores a predetermined number of fields to
3 provide an image history track.

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1 18. The circuitry as recited in claim 17 further
2 comprising signal processing means to analyze motion
3 between the predetermined number of fields and to
4 indicate the motion.

1 19. The circuitry as recited in claim 1 further
2 comprising:
3 a switch to provide an enable slow shutter signal
4 to enable remote digital slow speed shutter video
5 processing in the video source.

1 20. The circuitry as recited in claim 1 further
2 comprising:
3 an encoder to provide an encoded video output
4 signal from the digital representation of the selected
5 video signal in said memory, wherein a format of the
6 selected video signal is different from a format of the
7 encoded video output signal.

1 21. A camera comprising:
2 an image sensor to sense image information; and
3 a generate-write-control-signal circuit to provide
4 a write control signal when digital slow speed shutter
5 is enabled in the camera.

1 22. The camera as recited in claim 21 wherein write
2 control signal is a don't-write signal.

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3         a detect-enable signal circuit to detect an
4         enable-slow-shutter signal to operate the image sensor
5         in a slow shutter mode.

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3         a switch to provide an enable-slow-shutter signal
4         to operate the image sensor in a slow shutter mode.

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26. The camera as recited in claim 21 wherein the generate-write-control-signal circuit provides the don't-write signal by superimposing the don't-write signal on the video signal.

1 28. The camera as recited in claim 21 wherein the
2 generate-write-control-signal circuit superimposes the
3 don't-write signal in a back-portion of the vertical
4 blanking interval of the video signal.

1 29. The camera as recited in claim 21 wherein the
2 generate-write-control-signal circuit superimposes the
3 don't-write signal as a pulse in a vertical blanking
4 interval of the video signal.

1 30. The camera as recited in claim 22 further
2 comprising video circuitry to generate a video signal
3 from the image information, wherein the detect-enable
4 signal circuit receives the enable-slow-shutter signal
5 on separate leads from the video signal.

1 31. The camera as recited in claim 21 further
2 comprising a switch to supply an external lock signal
3 to the image sensor, wherein the image sensor acquires
4 an image synchronized to the an external lock signal.

1 32. A digital video memory comprising:
2 a memory to store digital image data representing
3 a selected video signal from a plurality of video
4 signals;
5 write control circuitry to detect a write control
6 signal when digital slow speed shutter operation is
7 enabled, wherein the memory is updated based on the
8 write control signal.

1 33. The digital video memory of claim 32 wherein the
2 write control signal is a don't-write signal, and the
3 digital image data stored in the memory is maintained
4 when the write control signal is detected.

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1 34. The digital video memory of claim 32 further
2 comprising:
3 enable circuitry to provide an enable-slow-shutter
4 signal to enable digital slow speed shutter operation.

1 35. The digital video memory of claim 34 wherein the
2 enable-slow-shutter signal is superimposed on the
3 selected video signal.

1 36. The digital video memory of claim 34 wherein the
2 enable-slow-shutter signal is a pulse of at least a
3 predetermined duration in a vertical blanking interval
4 of the video signal.

1 37. The digital video memory of claim 32 wherein the
2 write control signal is superimposed on the selected
3 video signal.

1 38. The digital video memory of claim 37 wherein the
2 write control signal is a pulse having at least a
3 predetermined threshold voltage in a vertical blanking
4 interval of the video signal.

1 39. The digital video memory of claim 32 wherein the
2 write control signal is provided separate from the
3 selected video signal.

1 40. The digital video memory of claim 32 further
2 comprising:
3 an encoder to provide an encoded video output
4 signal from the digital image data in said memory,
5 wherein a format of the selected video signal is

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1 41. The digital video memory of claim 40 wherein the
2 format of the encoded video output signal is
3 progressive scan RGB format.

43. The video selector of claim 42 wherein the digital video memory further comprises:

enable circuitry to provide an enable-slow-shutter signal to enable digital slow speed shutter operation.

1 45. The video selector of claim 42 the write control
2 signal is superimposed on the selected video signal.

5 control signal is provided in response to the
6 enable-slow-shutter signal.

1 53. The method as recited in claim 51 wherein the
2 write control signal is a don't-write signal.

1 54. The method as recited in claim 51 wherein the
2 remote memory is located at a different location from
3 the at least one video source.

1 55. The method as recited in claim 51 wherein the
2 write control signal is superimposed on a video signal.

1 56. The method as recited in claim 36 wherein the
2 write control signal is provided separate from a video
3 signal.

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